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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/658,732	09/11/2000	Makoto Inai	P/1071-1118	4527

7590 12/04/2003

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EXAMINER	
BAUMEISTER, BRADLEY W	

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action

Application No.	Applicant(s)
09/658,732	Inai et al.
Examiner	**Art Unit**
B. William Baumeister	2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED *Oct 14, 2003* FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid the abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

THE PERIOD FOR REPLY [check only a) or b)]

a) ☒ The period for reply expires *3* months from the mailing date of the final rejection.

b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.

2. ☐ The proposed amendment(s) will not be entered because:

(a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);

(b) ☐ they raise the issue of new matter (see NOTE below);

(c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

(d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____

3. ☒ Applicant's reply has overcome the following rejection(s):
the terminal disclaimer overcomes the double-patenting rejection.

4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because:
see attachment.

6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.

7. ☒ For purposes of Appeal, the ~~proposed amendment(s)~~ request for reconsideration a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended. BWB

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____

Claim(s) objected to: _____

Claim(s) rejected: *1-10 and 12-15*

Claim(s) withdrawn from consideration: _____

8. ☐ The proposed drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.

9. ☒ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). *20*.

10. ☐ Other:

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 10/14/2003 have been fully considered but they are not persuasive.

FINALITY

a. Applicant argues that (1) MPEP § 706.07 states that before a final rejection is in order, a clear issue should be developed between the examiner and applicant; (2) MPEP 706.02(m) and the Examiner's Note to Form Paragraph 7.20 states that the quotation of 35 USC §103(a) is required for, *inter alia*, all final actions; and therefore (3) the finality of the last office action was improper because the examiner did not include a quotation of 35 USC §103 in that office action.

b. First, the Examiner notes that at least the Office Action dated 5/15/2002 (paper #8) included the full quotation of 35 USC §103(a) in accordance with Form Paragraph 7.20, and the later Office action which was made final (paper #19) included the alternative form paragraph 7.103:

> *Statute Cited in Prior Action*
> The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Please note that MPEP 707 further states, "Where the text of section of Title 35 U.S. Code was previously reproduced in an Office action, form paragraph 7.103 may be used. *See* the

last two paragraphs of MPEP 707, appearing just prior to section 707.01. This provision expressly permits the use of form paragraph 7.103, effectively as an alternative, short-hand incorporation-by-reference of the full quotation of the statute. Moreover, this provision of MPEP 707 possesses **no** restrictions that would preclude the use of this alternative, short-hand paragraph in Office actions that are made final. As such, the use of the alternative, short-hand form paragraph 7.103 is proper for all Office actions that are issued subsequent to an Office action that sets forth the quotation of the statute in full--including those Office actions that are made final.

c. Second, while Applicant asserts that the failure to quote 35 U.S.C. §103(a) results in a failure to establish a clear issue as required by MPEP §706.07, this assertion is conclusory, and it is not supported by any rationales or arguments as to why the use of the alternative, incorporation-by-reference form paragraph 7.103 raises any uncertainties that would have been resolved by the use of the alternative, full-citation format of form paragraph 7.20. To the contrary, Applicant subsequently proceeds to argue why the combination of the cited prior-art references do not render the claims obvious under 35 USC 103. *See* REQUEST FOR RECONSIDERATION (paper #22), REMARKS section, pages 7-10. Restated, Applicant has evidenced that he fully understood the statutory basis of the obviousness rejection, and as such, the arguments that the statutory basis for the Office action were so unclear as to render the finality improper are not persuasive. Accordingly, the finality of the Office Action is still deemed to be appropriate and is therefore maintained.

DOUBLE PATENTING/TERMINAL DISCLAIMER

2. The terminal disclaimer filed on 10/14/2003 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent # 6,605,831 has been reviewed and is accepted. The terminal disclaimer has been recorded.

a. Accordingly the double-patenting rejection is withdrawn.

MERITS

3. Applicant argues that Enoki is not combinable with Sawada because Enoki teaches an undoped layer that is interposed between highly-doped, n+ type layers as opposed to being interposed between moderately-doped n type layers, such as disclosed by Sawada, and therefore, Enoki fails to teach or suggest anything about the effect of an undoped layer that is interposed between n type--as opposed to n+ type--layers. This argument is not persuasive because, as was understood by the skilled artisan, the semiconductor art does not possess any single, clear, specific definition or demarcation for separating "moderately doped semiconductors" from "heavily doped semiconductors." Rather, the specific labels of "moderately-doped" and "heavily doped" must be understood within the full context of the particular disclosure(s).

a. In the present case, as was explained in the Office action, the doped barrier (or semiconductor structure) of Sawada has a disclosed doping concentration of 1.5E18 cm^-3, and Enoki teaches the undoped barrier layer being sandwiched between barrier layer regions that are doped slightly higher, to 4E18 cm^-3. As such, whether the label "heavily doped" or "moderately

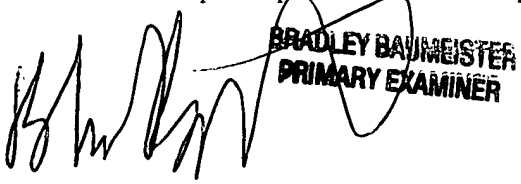
doped" may have been employed in a given reference, does not detract from the underlying fact that the two references teach very similar doping levels that are upon the same order of magnitude. Accordingly, Enoki's teaching of the effect that is produced by inserting the undoped layer between the two 10^18-doped layers, would suggest that the effect would similarly result when inserted in the Sawada device because that barrier is also doped to the same order of 10^18.

4. Applicant also argues that the references are not combinable because Enoki is directed towards a FET having an InAlAs barrier, while Sawada is directed towards a FET having an AlGaAs barrier--not an InAlAs barrier. This argument is not persuasive because Enoki was not relied upon for its additional teaching of the specific compositional species which may be employed to construct the FET. Restated, Enoki was **not** combined for the purpose of inserting within an n-AlGaAs barrier, an undoped layer that is composed specifically of InAlAs. Rather, Enoki was relied upon for its broader teaching that within a FET of given material system, the doped-barrier layer thereof may be further provided with an undoped region for influencing the Schottky barrier height, as was previously explained.

5. Accordingly, the rejection is still deemed to be proper and is therefore maintained.

INFORMATION ON HOW TO CONTACT THE USPTO

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner, **B. William Baumeister,** at **(703) 306-9165.** The examiner can normally be reached Monday through Friday, 8:30 a.m. to 5:00 p.m. If the Examiner is not available, the Examiner's supervisor, Mr. Tom Thomas, can be reached at (703) 308-2772. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



B. William Baumeister

Primary Examiner, Art Unit 2815

December 2, 2003